

## Christmas Tree Farms and Pesticides

David Orton

Christmas tree cultivation is a cross-border cancer. They are grown in Atlantic Canada and throughout the United States, including Maine, New Hampshire, Vermont, New York, Connecticut and Massachusetts. The objective of Christmas tree growing is to produce a tree about 6-8 feet in height as soon as possible, having foliage that is dense and dark green in color with the base of the tree about two-thirds of its height, and a tree resistant to disease. Foliage density is considered the key characteristic for Christmas trees, and shearing by growers increases this density.

In Nova Scotia, a public discussion has been underway over the last year, concerning the application of pesticides and nitrogen fertilizers to Christmas trees. The dominant species being grown in this Canadian province is Balsam Fir. Balsam Fir regenerates well from clearcuts and is well adapted to the soils and climate. Over 95% of Nova Scotia's Christmas trees (just under 2 million trees are cut annually) are exported to the U.S.

In the U.S., species of trees sold for Christmas trees are, in descending order, Scotch Pine, Douglas Fir, and Balsam Fir. "American" trees are much more likely to be grown in field plantations, a further difference with the Christmas tree industry in N.S. In N.S., more than 90% of Christmas trees are grown from naturally cultivated stands (former clearcuts). It takes 5-10 years to produce a marketable Christmas tree from previously cut-over land.

While concrete data is difficult to come by, American-owned companies in N.S. are said to own about 20% of Christmas tree land. These companies are also said to have land holdings in the U.S. American firms are the largest purchasers of trees from private woodlot owners in N.S., in addition to producing many trees from their own land. Press reports give the four big names in Christmas trees as G.R. Kirk Company, J. Hofert Maritimes Limited, Cold Star Limited and M. Walters Company. The American-owned pulp and paper company, Scott Maritimes Limited, with a kraft pulp mill in N.S., is also a major Christmas tree producer.

### Support for Christmas Tree Growing

Environmental activists in N.S. have generally supported the growing of Christmas trees, if they are grown in a non-environmentally destructive manner and pose no threat to the health of wildlife or humans. Christmas trees are best produced not as a mono-crop, but as one of several methods of diversifying products from a woodlot, methods which are recognized as sustainable ecological forestry. Christmas tree growing is seen as fitting into a strategy of multiple-use, as opposed to the single use of the dominant pulpwood forestry policy in N.S. The selling of Christmas trees, as compared to the selling of pulp, brings a relatively good economic return to growers.

## **Chemical Cultivation**

The literature produced for Christmas tree growers heavily emphasizes chemical methods of cultivation. Economic considerations are brought to the forefront, and chemicals are seen as reducing labor costs for growers. Fewer workers are needed to manage larger plantations. The “costs” to human and non-human life forms do not enter the capitalist equation. Extensive use of many pesticides and nitrogen fertilizer are advocated.

As used for Christmas tree cultivation, the term pesticides includes *herbicides* – used to kill what are considered weeds along with hardwoods; *insecticides* – used to kill insects considered pests such as the twig aphid, gall midge, tussock moth and spruce budworm; *fungicides* – used to control fungi associated with various tree diseases such as needlecast, canker, and shoot blight; and *growth regulators* – used to change plant growth characteristics so as to produce additional buds and branches.

## **Application of Pesticides**

It is important to be aware that the application of pesticides and fertilizer to Christmas trees is considered to be an *agricultural* activity and is hence basically not regulated. Regulations in N.S. supposedly only apply to aerial spraying of Christmas tree pesticides, or for persons carrying out contract spraying for growers. Therefore, Christmas tree sprayers carrying out their own spraying (which is overwhelmingly the case) do not have to post “intention to spray” notices, observe maximum wind speed restrictions or adhere to buffer zones, etc. It is therefore not surprising that within N.S., it was people living in the immediate vicinity of Christmas tree growers who first raised concerns about pesticide use. It was through these concerns that environmental activists discovered another problem, that of pesticide residues on Christmas trees and Christmas wreaths.

## **Human Concerns**

People living in the vicinity of chemically-treated Christmas tree operations and those who buy trees on which pesticides have been applied, should be extremely concerned, given the acreage of Christmas trees (about 100,000 acres in the Atlantic Provinces) and the number of growers (about 3,000 just in N.S.); given the promotion of pesticide use for Christmas tree cultivation (there are over 40 pesticides being suggested for use in Christmas tree literature – see in particular the *Christmas Tree Growers Manual: Atlantic Canada, 1987*); given the dangerous nature of many of the pesticides being used and the basically unregulated nature of their application; and given our lack of understanding on how such pesticides interact with each other in the human body and within the non-human environment.

## **Spray Drift**

Pesticide drift occurs through spray drift and vapor drift. Vapor drift results when the pesticide evaporates. The factors causing pesticide drift are considered complex and include wind velocity and air currents, temperature, air pressure, size of spray nozzle holes and droplet size, height of spray nozzles above the ground, etc. Given these factors, a buffer zone (if even allowed) around a sprayed area, becomes essentially a public relations gesture. Drift from aerial spraying is about five times that from ground spraying.

## **Safety**

Pesticides which were once declared “safe”, have later become officially unsafe. The United Nations 1987 report, *Our Common Future: The World Commission on Environment and Development*, noted “By 1986, more than 500 chemicals and chemical products had been banned altogether or had their uses severely restricted in the country of origin.” Monsanto, the chemical corporation which has plants in about 20 countries, manufactures the herbicide Vision (also known as Round-Up) for Christmas trees and general forestry. Monsanto was a former North American manufacturer of PCB’s, now banned. They were also the manufacturer of alachlor (trade name Lasso), the agricultural herbicide used for 17 years in Canada on such crops as corn and soybeans. The Canadian Minister of Agriculture now declares “that the use of Alachlor represents an unacceptable risk of harm to public health,” and the federal registration has been withdrawn.

## **Active and Inert Ingredients**

All pesticides can contain three categories of ingredients – active and inert ingredients, and contaminants from the production process. The herbicide Vision contains the active ingredient glyphosate (41%) and 59% inert ingredients. For any pesticide, check that the “official” data is not using the name of the active ingredient and the trade name, e.g. Vision, interchangeably. Inerts are normally unknown and considered trade secrets. While inerts may be harmless fillers, they can be poisonous in their own right or enhance the toxicity of the active ingredient. Manufacturers of pesticides do not normally allow access to the raw data on which they base safety claims. Such data are considered “trade secrets” and not open to independent critical scrutiny. Full disclosure about a pesticide is not normally available to the public.

Regarding contaminants, it has been reported that dicofol, which is used as an insecticide on Christmas trees, contains 7-12% DDT as a contaminant. Also, in the 1987 spraying season in Canada, the insecticide B.t. used against the spruce budworm, was shown to be contaminated with streptococcus bacteria. Mary O’Brien, writing in the summer 1986 issue of the *Journal of Pesticide Reform*, points out “People cannot talk about the health or environmental effects of a pesticide unless they are basing their conclusions on testing of the full formulation: active ingredients, intentionally added inert ingredients, and contaminants.”

## **Cancer and Birth Defects**

All of the pesticides used by Christmas tree growers can have consequences for human health and the environment, even if these consequences are still unknown. Based on a partial examination of the critical literature on pesticides available to Christmas tree growers, the following pesticides which are promoted for use are linked to cancer and/or birth defects: amitrole, benomyl, captan, carbaryl, captofol, chlordane, chlorothalonil, lindane, methoxychlor, thiram, 2,4-D.

## **Groundwater Contamination from Pesticides and Nitrogen Fertilizers**

The following pesticides are advocated for use by Christmas tree growers, they are more water soluble, and therefore particularly likely to cause groundwater contamination: atrazine, acephate, hexazinone, pronamide, simazine, chlorothalonil, benomyl, carbaryl, 2,4-D, glyphosate, malathion. Some of these chemicals, e.g. atrazine, have already contaminated groundwater in several countries.

Nitrogen fertilizers are also recommended to Christmas tree growers. The Growers Manual recommends up to 275 pounds of ammonium nitrate to be used per acre. Nitrogen fertilizers are said to increase the density of Christmas tree foliage by 10-20% and bring about a darker green color. However, nitrogen fertilizers are water-soluble and can bring about nitrate contamination of groundwater and wells. Nitrates are also implicated in cancer formation. Mid-May to June is the recommended period for applying nitrogen fertilizers. Small amounts of phosphorus and potassium can also be applied.

### **Pesticide Residues**

Pesticide residues on Christmas trees which have been sprayed with a cocktail of pesticides must be a concern. Christmas wreaths which use material from sprayed trees may also have pesticide residues. A sprayed tree in a well insulated house (which prevents the exchange of air) will magnify problems with toxic pesticide residues. We are not aware of any independent, systematic, random sampling of previously sprayed Christmas trees, to protect buyers.

### **Wildlife**

Given the human-centered bias of existing “research” on pesticides, documenting effects on non-target wildlife (and plant life) commands less attention. Even given this bias, the following pesticides, which are promoted for use in the *Christmas Tree Growers Manual: Atlantic Canada 1987*, are known to be toxic to fish birds and honey bees, according to the *Pesticides Safety Handbook* (1986 edition) published by the Ontario Ministry of the Environment:

*Known to be toxic to fish:* captafol, chlordane, dicofol, fenitrothion, malathion, meneb, permethrin.

*Known to be toxic to birds:* chlordane, dimethoate, diazinon, fenitrothion, methoxychlor, trichlorfon.

*Known to be toxic to bees:* acephate, carbaryl, chlorpyrifos, dicofol, dimethoate, fenitrothion, malathion, chlordane, methoxychlor, trichlorfon.

Yet there is also a *target* wildlife, according to the *Growers Manual*. Deer, porcupines, snowshoe hares, squirrels, mice, spruce grouse and pine grosbeaks are considered threats and subject to control. In the chilling words of the *Manual*, “With many of the larger animals that feed on the larger trees, population control may often be the best answer. This may be accomplished by shooting, trapping and removal to another location, or by poison baiting.” Two pesticides which are recommended for *direct* wildlife use are thiram-based taste repellents to be used against deer and rabbits, and zinc phosphide poison bait against mice.

### **Industry Response**

Within N.S., Christmas tree growers who use pesticides and nitrogen fertilizer have, through their organizations and in some cases individually, basically adopted the strategy of shooting the messenger. The main features of this strategy have been presenting the Christmas tree industry as the injured party; denial that there are any problems; accusations against activists of spreading “biased criticism based on myths and half-truths”; accusations of lying against environmentalists for “putting out stuff 100% wrong”; and the implied threat of a lawsuit against the writer of this article. The provincial government, which is locked in a tight embrace with the multi-million dollar Christmas tree industry, has defended growers as “responsible citizens” regarding

chemical use. Monsanto, in the summer of 1989, sent what most people would view as warning letters to some activists who have organized against the use of their herbicide Vision on Christmas trees and forestry sites.

### **What Can Be Done?**

Overall, the Christmas tree industry with its chemical connection is a major environmental problem. At present, property rights allow the “owners” to do essentially whatever they want. Yet today it becomes more and more evident that ecological rights must override property rights. Christmas tree growers, like anyone else who earns a living from the woods, must be forest guardians. They must uphold a biocentric Land Ethic which cares for the health of the soil and the water, the well-being of all non-human animals – other mammals, birds, fish, insects, etc. – and the health of all tree varieties and plant life. The nonhuman world does not exist solely as raw material for the human purpose.

Readers of the *Glacial Erratic* should spread the word about the dominant chemical orientation within the Christmas tree industry, and do whatever they can to help change the situation. The obvious vulnerable point is the marketplace. Boycott all pesticide-raised Christmas trees and encourage others to do the same. Support organic growers who do not use chemicals. Encourage such growers to *publicly* oppose the chemical trend and to develop an “organic certification” program, guaranteeing that their Christmas trees do not have pesticide residue.

If Christmas tree spraying is a problem in your community, or the spraying of blueberry fields, clearcut forest areas, roadsides, power lines, etc., organize community-based environmental protection committees to put a stop to all environmental abuse. We have a basic democratic right not to personally suffer the consequences of toxic pollution caused by others. Encourage “private” initiatives to address the problem, in the spirit of putting the Earth first.

This article was written for **The Glacial Erratic** by David Orton, member of the Green Web. For further contact write, R.R. #3, Saltsprings, Pictou County, Nova Scotia, Canada B0K 1P0.

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